

SFUND RECORDS CTR
88053528

SFUND RECORDS CTR
0816-00031



Walter Associates
Geotechnical and Water Resources Engineering

Potential Conduits Investigation

Jasco Chemical Corporation

Mountain View, California

AR0068

0000126

Potential Conduits Investigation

Jasco Chemical Corporation

Mountain View, California

AR0068

Prepared for:

BRONSON, BRONSON, AND MCKINNON

May 1988

WAHLER ASSOCIATES

Geotechnical Engineers, Geologists, and Hydrogeologists
1023 Corporation Way
Palo Alto, California 94303
Telephone (415) 968-6250

Project JCO-104H

00000002

LAW OFFICES OF
BRONSON, BRONSON & MCKINNON
A PARTNERSHIP INCLUDING PROFESSIONAL CORPORATIONS
BANK OF AMERICA CENTER
555 CALIFORNIA STREET
SAN FRANCISCO 94104
415/986-4200

MAILING ADDRESS
POST OFFICE BOX 7358
SAN FRANCISCO, CA 94120

TELEX
824040 KINBR UF
34485 KINBR SFO
TELECOPY 415/982-1394

FOUNDING PARTNERS
ROY A. BRONSON 1889-1977
EDWARD D. BRONSON, SR. 1893-1977
HAROLD R. MCKINNON 1894-1977

444 SOUTH FLOWER STREET
25th FLOOR
LOS ANGELES, CA 90017
213/628-5314
TELECOPY 213/628-7944

912 FORBES STREET
LAKEPORT, CA 95453
707/263-6400

100 PRINGLE AVENUE
WALNUT CREEK, CA 94598-3587
415/945-6660

May 6, 1988

Mr. Roger B. James
California Regional Water Quality Control Board
1111 Jackson Street, Rm. 6040
Oakland, CA. 94607

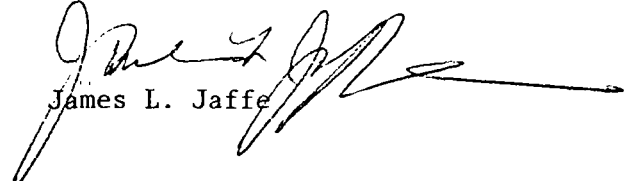
Subject: Jasco Chemical Corporation. 2189.8210(CEC)

Dear Mr. James,

Enclosed is a copy of the Potential Conduits Investigation for the Jasco facility.

Should you have any questions concerning the report, please do not hesitate to contact me at your earliest convenience.

Sincerely,


James L. Jaffe

JLJ:gg
Enclosure



Wahler Associates

0000126

Geotechnical and Water Resources Engineering

May 6, 1988
Project JCO-104H

Mr. James L. Jaffe
Bronson, Bronson & McKinnon
Bank of America Center
555 California Street
San Francisco, CA 94104

Dear James,

Enclosed is a copy of the Potential Conduits Investigation Report prepared for Jasco Chemical Corporation in Mountain View, California. Please do not hesitate to call if you have any questions or comments regarding the topics discussed in this report.

Sincerely,

WAHLER ASSOCIATES

Michelle Stay
Michelle Stay
Geologist

Robert G. Breynaert

Robert G. Breynaert
Project Manager

F. Homayounfar - *NICK*

F. Homayounfar, Ph.D. P.E.
Department Head,
Environmental Services

MS:RGB:FH:1

Enclosure

TABLE OF CONTENTS

	<u>Page</u>
A. INTRODUCTION	1
B. DATA SOURCE	2
C. DEFINITION AND EVALUATION OF POTENTIAL VERTICAL CONDUITS	6
D. DEFINITION AND EVALUATION OF POTENTIAL HORIZONTAL CONDUITS	8
E. CONCLUSIONS	11
F. LIMITATIONS	12

ANNOTATED REFERENCES

TABLES

<u>Number</u>	<u>Following Page</u>
1 Water Producing Wells Within CIR	16
2 Well Construction Details of Registered Wells Within CIR	16
3 Monitoring Wells Within CIR	16
4 Construction Details of Monitoring Wells Within CIR	16

FIGURES

<u>Number</u>	<u>Following Page</u>
1 Location of Study Area	16
2 Conduit Inventory Region	16
3 Preliminary Well Identification Summary	16
4 Schematic Diagram of Hetch-Hetchy Aqueduct	16
5 Location of Existing A and B ₁ Aquifer Monitoring Wells	16

APPENDIX A - Well Construction/Destruction



POTENTIAL CONDUIT INVESTIGATIONA. INTRODUCTION

Wahler Associates (WA) was retained by Jasco Chemical Corporation to conduct a potential conduit investigation to satisfy the requirements of California Regional Water Quality Control Board (CRWQCB) Clean-Up and Abatement Order (CAO) No. 87-094, issued on August 3, 1987. This report summarizes the investigation which includes identification, location, and evaluation of public and private wells which may be potential vertical conduits for chemical migration from shallow to deep permeable, water bearing zones. This report also summarizes the potential for chemical migration through horizontal conduits within the conduit inventory region (CIR) as required by CAO No. 87-094.

1. Purpose

The potential conduits investigation was conducted to address the possibility that unsealed wells with multiple perforations and/or pervious annular gravel packs which contact areas of contaminated ground water may serve as conduits for chemical migration from shallow to deeper, permeable, water bearing zones. In addition, potential horizontal conduits such as utilities excavations, storm sewers, and the Hetch-Hetchy aqueduct have been created due to residential and industrial development within the Mountain View area. Therefore, this investigation was conducted to assess the possibility of conduits affecting the horizontal and vertical chemical migration within shallow, and from shallow to deeper permeable, water bearing zones in and around Jasco Chemical Corporation.

2. Definition of the Conduit Inventory Region

The conduit inventory region (CIR) has been defined as shown on Figures 1 and 2. The southern boundary of the CIR is Villa Street. The northern boundary is Hackett Avenue. Permanente Creek is the western boundary, and

Granada Drive is the eastern boundary. The CIR boundaries were based on the dimensions of the known A-aquifer chemical plume, in combination with recommended boundaries outlined in the February 18, 1988 letter submitted to Mr. James L. Jaffe by Mr. Steven Morse of the CRWQCB.

B. DATA SOURCE

Available records from many public and private sources were searched to obtain information on the locations of active, inactive or destroyed wells located within and in the vicinity of the CIR. A listing of the references used in this investigation is given at the end of this report.

1. Santa Clara Valley Water District

The SCVWD provided a great deal of useful information regarding the locations of active, inactive and abandoned water wells located at and in the vicinity of the CIR. A representative of WA visited the SCVWD office on Friday, March 11, 1988. Information obtained from the SCVWD on that day, includes a computer printout containing the locations and characteristics of all of the known water wells, excluding monitoring wells, located within the CIR. The listing was compiled as part of the South Bay Multi-Site Cooperative Agreement Well Inventory Investigation prepared for the CRWQCB by the SCVWD. This listing will henceforth be referred to as the well inventory data base (WID). A copy of the report prepared to assist in the use of the WID was also obtained. Although the WID was compiled using existing, available SCVWD data sources, computer printouts and copies of the following data bases and publications were obtained to cross-check the accuracy of the WID: information on registered water producing wells, active and inactive; the SCVWD well locations map for the Mountain View quadrangle; copies of the SCVWD Saltwater Intrusion Investigation reports prepared during October 1980, February 1985, and July 1985. Examination of the Saltwater Intrusion Investigation (SII) reports revealed that the Jasco CIR was not contained within the SII canvass area. In addition to the WID and

the additional data sources outlined above, a copy of the monitoring wells search data base for the CIR and surrounding area was obtained. In addition, State DWR Water Well Drillers Reports for all of the monitoring wells located within and in the vicinity of the CIR were obtained from the SCVWD.

Two additional pieces of information obtained from the SCVWD were examined as part of this investigation: the as-built drawings for the improvements to Permanente Creek, and the specifications and contract documents for the improvement of Permanente Creek, 485 feet south of Villa Street to California Street. No wells or other pertinent information were found from the examination of these two sources. A complete listing of the data sources obtained from the SCVWD or examined while at the SCVWD is contained within the references section. The majority of the useful information obtained from the SCVWD was obtained from the WID and monitoring wells search computer printouts.

The entire CIR is contained within the township and range coordinate area 06S2W21. The WID printout for 06S2W16 was also obtained but not used in this investigation. The monitoring wells search output used in this investigation was also compiled using data from 06S2W21.

Historical water level data were also examined. According to the SCVWD, this information is subject to error because the water levels obtained are from old agricultural wells and the depth of perforations is generally unknown.

2. California Department of Transportation/Santa Clara County Planning
Department Construction Division

The California Department of Transportation (CALTRANS) was contacted regarding the existence of wells encountered during the construction of Central Expressway. The CALTRANS public affairs office stated that Santa Clara County was responsible for the construction of Central Expressway. A

representative of the Santa Clara County Planning Department Construction Division stated that all wells sealed during construction of Central Expressway are recorded by the SCVWD.

In addition, a copy of the Official Map of Santa Clara County prepared in 1902-03 was obtained from the Santa Clara County Planning Department Construction Division. This map was used to cross-check the locations of agricultural wells provided by the local well drillers contacted as part of this investigation.

3. California Department of Water Resources (DWR)

The California DWR regulates well construction and destruction within the State of California. Since 1963, the DWR requires that a water well driller's report be submitted for each well drilled which shows the location of the well and also a log of the soil boring. All DWR well drillers reports for the CIR and surrounding area have been incorporated into the SCVWD WID. The SCVWD and DWR have identical data sets for the CIR and surrounding areas.

4. Santa Clara County Health Department

A copy of the Santa Clara County Health Department (SCCHD) private well sampling program final report was obtained to verify if any of the private wells sampled as part of this program were located at or in the vicinity of the CIR. Attempts were made by the SCCHD to sample well D03, located just east of the CIR but the pump was inoperable and the attempt was abandoned. No other wells within and in the vicinity of the CIR were sampled as part of the SCCHD investigation.

5. City of Mountain View Department of Public Works

The City of Mountain View Department of Public Works provided as-built drawings and other details regarding the installation of sanitary, storm sewers and water mains. As-built drawings for a water relocation system

along Central Expressway between Rengstorff Avenue and Bailey Avenue were also examined, but did not contain any well locations.

6. Pacific Bell

Pacific Bell provided maps illustrating the locations and characteristics of their underground telephone lines (main conduits). An engineer was also made available to answer any questions.

7. Pacific, Gas and Electric (PGandE)

A representative of WA visited the Cupertino PGandE office on Thursday, April 14, 1988. Location maps and project files were examined to locate any unregistered wells encountered during the installation of gas and electric mains. An engineer was also made available to answer any questions regarding their buried utilities.

8. San Francisco Water Department (SFWD)

A representative of WA met with Mr. Stan Richards of the SFWD, Milbrae office to discuss the characteristics of the Hetch-Hetchy Aqueduct (Figure 4), and information regarding the presence of unregistered wells located in the Hetch-Hetchy right-of-way within the CIR.

9. Well Drillers

Local well drillers were contacted to obtain access to files containing information about unregistered water-producing wells drilled within the CIR, as well as to obtain well logs of any registered wells within the CIR not in SCVWD files. Bob Garcia, of Garcia Well and Pump, and Frank Clough of C & N Well and Pump, made their private well log files available for inspection; however, no additional information regarding water producing wells within the CIR was obtained.

10. Other Reports and References

A copy of a report, prepared in 1986 for the Clean Water Task Force, entitled "Possible Well Locations: Selected Parts of Santa Clara Valley, California" was obtained from Weiss Associates. The CIR was not contained within any of the study areas canvassed as part of the Clean Water Task Force investigation.

A Copy of "Groundwater in the Santa Clara Valley, California", prepared in 1924 by W.O. Clark was obtained on loan from the U.S. Geological Survey. Two wells, numbers 2142 and 2143, were identified within the CIR. Well 2142 has been tentatively identified as State well number 06S2W21G03 and well 2143 as 06S2W21G04. SCVWD records state that both wells were destroyed in 1966.

C. DEFINITION AND EVALUATION OF POTENTIAL VERTICAL CONDUITS

Potential vertical conduits consist primarily of water-producing or monitoring wells. An exhaustive search was undertaken to locate wells within the CIR, which might serve as conduits between the shallow and deeper permeable zones. Historical and current data were thoroughly examined to determine if potential vertical conduits exist within the CIR that could provide a pathway for vertical migration of chemicals.

1. Water Producing Wells

The locations of active, inactive and destroyed water producing wells found within and in the vicinity of the CIR are shown on Figure 3. A listing of the characteristics of these wells are included as Table 1. The well construction details of wells located within the CIR are given in Table 2. A total of five active, inactive and destroyed water producing wells were found within the CIR (Tables 1 and 2, Figure 3). One of the wells, F01, is Jasco A-aquifer well V-4, located at the northwest boundary of the Jasco site. According to the SCVWD, two of the wells, G03 and G04, were destroyed in 1966; however, the method of destruction is unknown. These wells are

located adjacent to the eastern border of the CIR, beyond the area affected by the Jasco plume. A field check by the SCVWD, reports that the locations of these destroyed wells as described in SCVWD records are now covered by a sidewalk. The two additional wells, D#1 and C#2, were identified by aerial photo interpretation as part of the South Bay Multi-Site Cooperative Agreement Investigation. A field check by a WA representative could not locate either well. The reported location of well C#2 is now a residential zone. A backyard tool shed located very close to the documented well location could possibly have been misidentified as a pump house. The reported location of well D#1 is within the Hetch-Hetchy right-of-way. There are four air intake/release valves at this location. These valves are encased in concrete, and could also have been misidentified as a water producing pump. No other water producing wells were found in the CIR as listed in the WID. Four wells located adjacent to the western boundary of the CIR are also shown on Figure 3. Three of the wells, C01, D01, and D09 have been destroyed. Well C01 was destroyed in January, 1972, well D01 during October, 1976, and D09 during April, 1973. The fourth well, C02, is reported to be an inactive well located in the Hetch-Hetchy right-of-way just west of Permanente Creek. According to the SFWD, the well was destroyed in 1974. Attempts were made to obtain the reported destruction permit; however, the permit could not be located by either the SCVWD or the SFWD. It was originally proposed that well C02 would be sampled as part of this investigation. Since the well was reported to be destroyed and could not be located, the well was not sampled.

2. Monitoring Wells

A review of the monitoring wells search computer output for township and range coordinate area 06S2W21 indicates that the only monitoring wells within the CIR are those installed as part of the Jasco investigation. The configuration of the Jasco monitoring network is shown on Figure 5. Table 3 outlines the location characteristics of the monitoring wells. Table 4 discusses the construction details of all monitoring wells within the CIR.

D. DEFINITION AND EVALUATION OF POTENTIAL HORIZONTAL CONDUITS

The direction of groundwater flow in the A-aquifer, at and in the vicinity of the Jasco site, is to the north-northeast. Thus, from current known distributions of chemicals, one can predict, with a degree of confidence, their future potential migration direction. However, if preferential pathways exist in the A-aquifer, chemicals can move in a direction not expected on the basis of the current ground water gradient. These preferential pathways include:

- o natural high permeability zones
- o sanitary storm sewers and water mains
- o the Hetch-Hetchy aqueduct
- o gas and electric lines
- o telephone lines
- o other buried utilities.

This section of the report presents the evaluation of all identified potential horizontal conduits and include all of the documented data.

1. Natural High Permeability Zones

Four high permeability zones have been identified by the characterization work that has been performed by Wahler Associates: The vadose high permeability zone, the A-aquifer, the A₁-aquifer, and the B₂-aquifer. Detailed descriptions of the site stratigraphy and hydrogeology may be found in the following technical reports which have been submitted to the CRWQCB:

- o Section C.1 and C.2 of the Phase I Hydrogeologic Investigation submitted to the CRWQCB on June 5, 1987.
- o Section C.1, C.2, and C.3 of the Phase II Hydrogeologic Investigation submitted to the CRWQCB on November 5, 1987.

- o The stratigraphy and conclusions section of the Aquifer Testing Report submitted to the CRWQCB on December 21, 1987.
- o Sections C.1 and C.2 of the Phase IIa Hydrogeologic Investigation submitted to the CRWQCB on March 31, 1988.

2. Sanitary, Storm Sewers and Water Mains

The City of Mountain View maintains separate sanitary, storm and water mains. According to the Engineering Department, information regarding the characteristics of the above-mentioned potential horizontal conduits is very sketchy because, within the CIR, installation occurred before 1960.

Existing sanitary sewers slope north towards San Francisco Bay. According to the City of Mountain View, the maximum diameter of concrete or clay pipes is approximately 30 inches. The maximum excavated depth for installation is said to be 12 to 13 feet. There is no record of the type of backfill used.

Storm drains are approximately 60 to 72 inches in diameter. The maximum excavated depth for installation is approximately 8 feet below the surface. There is no record of the type of backfill used.

Water mains are approximately 16 to 20 inches in diameter, and are located at a maximum depth of 8 feet below the surface. Again, there is no record of the type of backfill used.

Within the portion of the CIR where investigative work has been performed by Wahler Associates, the shallowest depth to groundwater encountered is approximately 24 feet. The difference between this value and the maximum depth of the sanitary and sewer excavations, 12 to 13 feet, makes it extremely unlikely that groundwater is currently or has in the recent past intersected the sewer or water main backfill material.

3. Hetch-Hetchy Aqueduct

The Hetch-Hetchy Aqueduct, oriented roughly east-west, is located approximately 700 feet north of Jasco Chemical Corporation and does not intersect the known A-aquifer chemical plume. The aqueduct, in this area, is an 80-foot wide strip of land containing two pipelines placed side by side. A schematic diagram illustrating the characteristics of the aqueduct is shown on Figure 4. The aqueduct dips beneath Permanente Creek and at that point is encased in concrete.

The remaining length of the aqueduct (within the CIR) is backfilled with a sand and native material mixture. The total excavated depth varies, but within the CIR generally does not exceed 12 feet.

Water movement within the aqueduct is gravity maintained, flowing from the east-northeast to west-southwest, oblique to the direction of groundwater flow.

The total excavated depth of the aqueduct, approximately 12 feet, combined with the aqueduct being located outside the known chemical plume area makes it unlikely that the aqueduct could serve as a potential horizontal conduit given the current hydrogeologic conditions.

4. Utilities

Pacific Gas & Electric (PGandE) provided extensive information regarding the characteristics of underground gas and electric mains throughout the CIR.

a. Gas and Electric - According to the Engineering Department, the maximum excavated depth of the gas mains is 6 feet. The actual depth varies due to residential and industrial development and associated grading. Presently, PGandE uses clean sand to backfill excavated areas; however, before the early 1960's, native materials were used to backfill excavated areas. To prevent corrosion, a cathodic protection system consisting of zinc or magnesium anodes are bonded to the gas pipes.

Electric lines within the CIR occur predominantly above-ground. Underground lines are contained within 3-inch diameter PVC pipes and are located less than 5 feet below the surface.

b. Pacific Bell - According to Ken Leach and John Diaz, engineers with Pacific Bell, it is customary to install telephone lines in conjunction with PGandE using joint trenches. Most trenches are at a maximum depth of 3 feet. However, beneath Central Expressway, two 3-1/2-inch conduits are encased in concrete with 5 feet of cover.

c. Other Potential Conduits - According to various utility company engineers, it is customary to vertically stack conduits (gas, electric, telephone, cable TV) in joint-trenches that have already been installed by PGandE.

d. The shallow depth of the gas, electric, telephone and other utilities excavations make it extremely unlikely that groundwater is currently or has in the recent past intersected the backfill material.

E. CONCLUSIONS

1. 0652W21F01, installed by WA according to SCVWD regulations, reaches a maximum depth of 40 feet and does not penetrate the B₁-aquifer. Therefore, it is extremely unlikely that well F01 could serve as a vertical conduit for movement of chemicals in the Jasco plume.
2. 06S2W21G03 and G04 are located outside of the known A-aquifer chemical plume. These wells were destroyed in 1966 and may or may not have been sealed according to SCCHD recommendations. Since these two wells are located to the east of the known chemical plume makes it extremely unlikely that wells G03 and G04 could serve as potential conduits for vertical movement of chemicals from the Jasco plume.

3. Field evidence does not support the contention that wells C#2 and D#1 exist within the CIR. A field check of the area surrounding the photo identified revealed objects that could have been mistaken for wells or well pump houses.
4. The Hetch-Hetchy Aqueduct does not intersect the known A-aquifer chemical plume. Maximum depth of excavation is approximately 12 feet and therefore does not penetrate the A-aquifer. Therefore, it is extremely unlikely that the Hetch-Hetchy aqueduct could serve as a potential horizontal conduit for the Jasco plume within the CIR.
5. Underground utilities (gas, telephone, sewers, etc.) are shallow in nature, not exceeding 10 to 12 feet in depth. Therefore, it is extremely unlikely that utilities excavations could serve as potential horizontal conduits for the Jasco plume within the CIR.

F. LIMITATIONS

The data, information, interpretations, and conclusions contained within this report are presented specifically and solely for Bronson, Bronson, and McKinnon. The conclusions and professional opinions presented herein were developed by Wahler Associates, in accordance with the currently accepted geologic and hydrologic principles and practice. This investigation was limited by the fact that the information used in the preparation of this report was written and compiled by parties other than Wahler Associates. In addition, there was no statewide authority enforcing standards and requiring documentation for the construction and sealing of water wells prior to about 1967. Appendix A contains a chronology the State and County regulations regarding well installation and sealing methods employed in Santa Clara County.

WA cannot be held responsible for any conclusions and recommendations made by others, unless we have been given an opportunity to review such conclusions and concur in writing. The conclusions made are subject to change if additional information becomes available.

ANNOTATED REFERENCESCALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)

CALTRANS; 1988, Personal communication with Mr. Thatcher, Construction Division.

CITY OF MOUNTAIN VIEW, DEPARTMENT OF PUBLIC WORKS

City of Mountain View, Department of Public Works; 1966, Water System Relocation Plan, File No. 14007-3-4.

_____ ; 1988, Personal communication with Tim Lee, Engineering Department.

DRILLERS

C & N Well and Pump; 1988, Personal communication with Frank Clough, owner/driller.

Garcia Well and Pump; 1988, Personal communication with Bob Garcia, former owner/driller.

PACIFIC GAS AND ELECTRIC (PGandE)

PGandE; 1970, San Jose Division Location Maps F-12-2,3 and 3349-F2, F3, F4.

_____ ; 1988, Personal communication with Larry Berg, Engineering Department.

PACIFIC BELL

Pacific Bell; 1982, Main Conduit Location Plan. Record Nos. 2004, 2006, 2008, 2010, 2012, 2014.

_____ ; 1988, Personal communication with John Diaz, Engineering Department.

_____ ; 1988, Personal communication with Ken Leach, Engineering Department.

SAN FRANCISCO WATER DEPARTMENT (SFWD)

SFWD; 1950, Deed, A. Kelly and B.J. Kelly and the City and County of San Francisco.

_____ ; 1988, Personal communication with Stan Richards, Milbrae Office.

SANTA CLARA COUNTY (SCC)

SCC; 1902-1903, Official Map of Santa Clara County, revised 1905, 1:25,000.

___; 1988, Personal communication with Don Marcott, Surveyor, Planning Department.

SANTA CLARA VALLEY WATER DISTRICT (SCVWD)

SCVWD, 1965, Santa Clara County Flood Control and Water Conservation District (SCCFC WCD), Zone NW-1, Permanente Creek Plan and Profile, sheets 5,6,7,28, and 29.

___; 1980, Saltwater Intrusion Investigation in the Santa Clara County Baylands Area, California, by Thomas Iwamura, Engineering Geologist, 2nd printing, with minor corrections, December 1984. Publication was examined, but CIR is not included within study area.

___; 1984, Field notes for Saltwater Intrusion Prevention Project, Sub-areas E & F, in Well Department Publication was examined, but CIR is not included within the study area.

___; 1985a, Saltwater Intrusion Prevention Project, Bimonthly Progress Report No. 5, Prepared by John H. Clarke, February, 1985. Publication was examined, but CIR is not included within the study area.

___; 1985b, Saltwater Intrusion Prevention Project, Bimonthly Progress Report No. 7, Prepared by Richard E. Kimmel, July, 1985. Publication was examined, but CIR is not included within the study area.

___; 1987a, Well Locations Plotted by DWR - State Well Location Numbers - Mountain View, California, 15-minute Quadrangle.

___; 1987b, South Bay Multi-Site Cooperative Agreement No. 5-130-120-1, Well Inventory, prepared for the California Regional Water Quality Control Board (CRWQCB).

___; 1988a, Well Inventory, Section 21, Computer Printout, Well Department.

___; 1988b, Well Inventory, Section 16, Computer Printout, Well Department; examined for CIR not within Section 16.

___; 1988c, Requested Statistics for Registered Water Producing Wells, Computer Printout, Water Revenue Section.

___; 1988d, Monitoring Wells Search, Computer Printout, Water Revenue Service.

___; 1988e, Well Logs for Monitoring Wells, Water Revenue Section.

___; 1988f, Master Active and Inactive Well Files, Water Revenue Section.

___; 1988g, Abandoned and destroyed Well Files, Microfiches, Water Revenue Section.



____; 1988h, Personal communication with Leslie Bejar, SCVWD Well Department.

SANTA CLARA COUNTY HEALTH DEPARTMENT (SCCHDD)

SCCHD; 1986b, Santa Clara County Private Well Sampling Program, Final Report, January, 1986.

____; 1988, Personal Communication, Ms. Linda Crawford, Senior E.H. Sanitarian SCCHD.

OTHER REPORTS

Aqua Terra Technologies (ATT); 1987, Potential Well Conduits, Permanente Creek to Rengstorff Avenue, Colony Street to Charleston Road, Mountain View, California. Publication was examined, but CIR is not included within the study area.

Clark, W.O.; 1924, Ground Water in the Santa Clara Valley, California, U.S. Geological Survey Water Supply Paper No. 519.

Weiss Associates; 1986, Possible Well Locations Selected Parts of Santa Clara Valley, California, prepared for the Clean Water Task Force. Publication was examined, but CIR not included within the study area.



0000126

TABLE 1
WATER PRODUCING WELLS WITHIN CIR
JASCO CHEMICAL CORPORATION

<u>State Well No.</u>	<u>Location</u>	<u>Local I.D.</u>	<u>Status</u>	<u>Abandonment Certification</u>
06S2W21C#2	70 S. Hackett Ave./ 200 W. Farley St.	None	WA field check was unable to locate	None
06S2W21D#1	150 N. Central Exp./ 270 E. Silverwood Ave.	None	WA field check was unable to locate	None
06S2W21F01	560 North Villa St./ 160 E. Higdon Ave. Ext,	V-4	active	N/A
06S2W21G03	150 North Frontage Rd./ 15 West Granada Dr.	2142	destroyed	Yes
06S2W21G04	194 North Frontage Rd./ 20 West Granada Dr.	2143	destroyed	Yes



TABLE 1 (Continued)

WATER PRODUCING WELLS WITHIN CIR
JASCO CHEMICAL CORPORATION

<u>State Well No.</u>	<u>Date Abandoned</u>	<u>Abandonment Action</u>	<u>Destruction Permit</u>	<u>Date Destroyed</u>	<u>Destroyed Well Seal</u>
06S2W21C#2	N/A	N/A	NO	NR	NR
06S2W21D#1	N/A	N/A	NO	NR	NR
06S2W21F01	N/A	N/A	N/A	N/A	N/A
06S2W21G03	10-28-66	SCVWD Field check: side- walk now covers well area 2-7-67	NO	1966	No Record; possibly 20' - 40' cement cap
06S2W21G04	8-22-66	SCVWD Field check: side- walk now covers well area 2-7-67	NO	1966	No Record; possibly 20' - 40' cement cap

EXPLANATION:

70 S. Hackett Ave./200 W. Farley St. - well is located 70 feet south
of Hackett Avenue, and 200 feet west of Farley Street.

N/A - does not apply

NR - No record



TABLE 2

WELL CONSTRUCTION DETAILS OF REGISTERED WELLS WITHIN CIR
JASCO CHEMICAL CORPORATION

<u>State Well No.</u>	<u>Date Drilled</u>	<u>Well Log</u>	<u>Well Depth (feet)</u>	<u>Bore Diameter (inches)</u>	<u>Casing Diameter (inches)</u>	<u>Driller</u>	<u>Drilling Method</u>	<u>Gravel Pack</u>	<u>Screened Interval</u>	<u>Surface Seal</u>
06S2W21C#2	No record	No	No record	No record	No record	No record	No record	No record	No record	No record
06S2W21D#1	No record	No	No record	No record	No record	No record	No record	No record	No record	No record
06S2W21F01	4-2-87	Yes	35	8	2	HEW Drilling	Hollow-Stem Auger	Yes, Lone Star No. 3 Sand	28'-35'; 0.010"	0'-27' Grout Bentonite
06S2W21G03	No record	No	No record	No record	7	No record	No record	No record	No record	No record
06S2W21G04	No record	No	No record	No record	7	No record	No record	No record	No record	No record

0000126

TABLE 3

MONITORING WELLS WITHIN CIR
JASCO CHEMICAL CORPORATION

<u>State Well Number</u>	<u>Location</u>	<u>Local I.D.</u>	<u>APN</u>
06S2W21C01A	78S Central Exway/473E Higdon Ave.	V-6	154 02 040
06S2W21C02A	Central Exway/18W Beatrice St. Ext.	V-7	150 21 500
06S2W21C03A	490S Wright Ave./350E Bonny St. Ext.	I-2	150 21 500
06S2W21C04A	80S Meridian Way/230E Bonny St.	I-3	150 21 500
06S2W21C05A	51N Central Exway/132E Beatrice St.	V-9	150 21 500
06S2W21F01A	436N Villa St./137E Higdon Ave.	V-3	154 02 001
06S2W21F02A	553N Villa St./127E Higdon Ave.	V-2	154 02 001
06S2W21F03A	427N Villa St./170E Higdon Ave.	V-1	154 02 001
06S2W21F04A	554N Villa St./284E Higdon Ave. Ext.	V-5	154 02 001
06S2W21F05A	150S Higdon Ave./550E Villa St.	I-1	154 02 001
Not Assigned	appx. 300S Central Exway/ 300E Higdon Ave.	V-10	154 02 001
Not Assigned	appx. 60N Central Exway/ 105E Beatrice St.	V-8	154 02 500

EXPLANATION:

APN: Assessors parcel number



TABLE 4

CONSTRUCTION DETAILS OF MONITORING WELLS WITHIN CIR
JASCO CHEMICAL CORPORATION

State Well No.	Local I.D.	Status	Date Drilled	Well Log	Well Depth (feet)	Bore Diameter (inches)	Casing Diameter (inches)	Driller	Drilling Method	Gravel Pack	Screened Interval	Surface Seal
06S2W21C01A	V-6	Active	4-28-87	Yes	42.7	8	2	HEW Drilling Co.	HSA	Lone-Star #3 35.5'-42.7'	37.5'-42.7' 0.010"	0'-35.5' Bentonite & Grout
06S2W21C02A	V-7	Active	4-29-87	Yes	35.5	8	2	HEW Drilling Co.	HSA	Lone Star #3 22'-35.5'	24'-35.5' 0.010"	0'-22' Bentonite & Grout
06S2W21C03A	I-2	Active	8-11/14-87	Yes	54.5	13.5"-48' 7"-BOH	10-Conductor 2-PVC	Weeks Drilling	RM	Lone Star #3 47'-54.5'	49'-54.5' 0.202"	0'-47' Bentonite & Grout
06S2W21C04A	I-3	Active	8-12/21-87	Yes	56.0	13.5'-33.5' 7"-BOH	10-Conductor 2-PVC	Weeks Drilling	RM	Lone Star #3 46.5'56'	49'-56' 0.020"	0'-46.5' Bentonite & Grout
06S2W21C05A	V-9	Active	2-26/29-88	Yes	28.0	8	2	PC Exploration	HSA	Lone Star #3 22'-28'	23'-28' 0.020"	0'-22' Bentonite & Grout
06S2W21F01A	V-3 ^a	Active	11-3-86	Yes	35.5	10	5	Unknown	HSA	Lone Star #3	20'-25' 0.020"	0'-17' Bentonite & Grout
06S2W21F02A	V-2	Destroyed; Permit No. 88D0051										
06S2W21F03A	V-1 ^a	Active	5-24-84	Yes	48.0	NR	2	NR	NR	Aquarium #4 26'-48'	28'-47' Unknown	0-28' Bentonite & Cement Slurry
06S2W21F04A	V-5	Active	4-27-87	Yes	36.5	8	2	HEW Drilling Co.	HSA	Lone Star #3 32'-36.5'	33.5'-36.5' 0.010"	0-32' Bentonite & Grout
06S2W21F05A	I-1	Active	4-27/ 5-12-88	Yes	57.5	13.5"-41' 7"-BOH	10-Conductor 2-PVC	HEW Drilling Co. Pitcher Drilling	HSA	Lone Star #3 46.3'-57.5'	48.3'-57.5' 0.010"	0'-46.3' Bentonite & Grout
Not Assigned	V-10	Active	3-4/5-88	Yes	32.0	8	2	HEW Drilling Co.	HSA	Lone Star #3 24'-32'	25'-32' 0.020"	0'-24' Bentonite & Grout
Not Assigned	V-8	Active	2-24-88	Yes	37.0	8	2	PC Exploration	HSA	Lone Star #3 31'-37'	32'-37' 0.020"	0'-31' Bentonite & Grout
06S2W21F01	V-4 ^b	Active	4-2-84	Yes	35.0	10	2	HEW Drilling	HSA	Lone Star #3 27'-35'	28'35' 0.010"	0'-27' Bentonite & Grout

^a - Not installed by WA

^b - water producing well also.

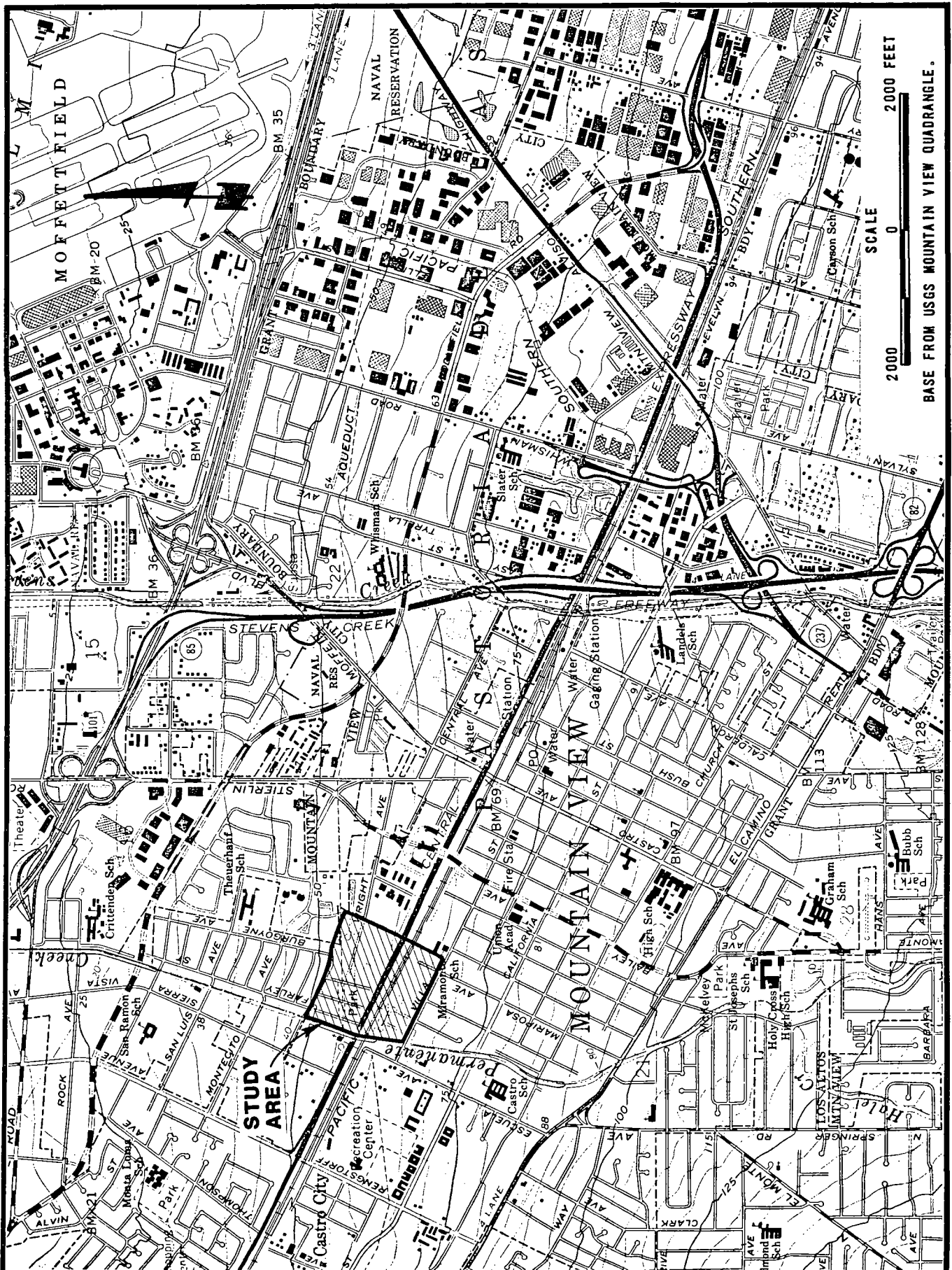
NR - No record

HSA - Hollow-Stem Auger

RM - Rotary Mud

BOH - Bottom of Hole

0000126



Wahler
Associates

**JASCO CHEMICAL CORPORATION
POTENTIAL CONDUIT INVESTIGATION**

PALO ALTO • CALIFORNIA

LOCATION OF STUDY AREA

PROJECT NO.

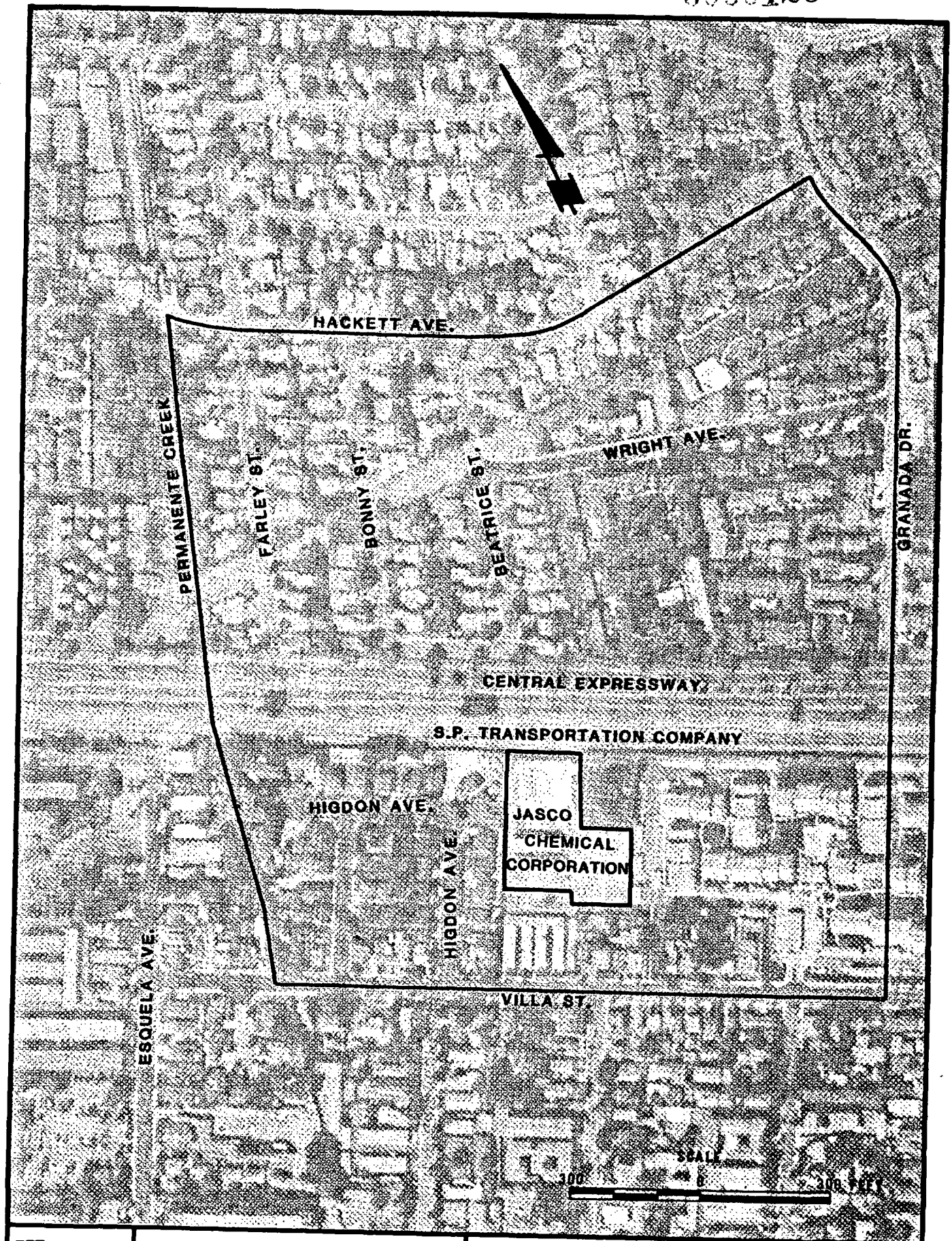
JCO-104H

DATE

MAY 1988

FIGURE NO.

1



Wahler
Associates

JASCO CHEMICAL CORPORATION
POTENTIAL CONDUIT INVESTIGATION

PALO ALTO • CALIFORNIA

CONDUIT INVENTORY REGION

PROJECT NO.

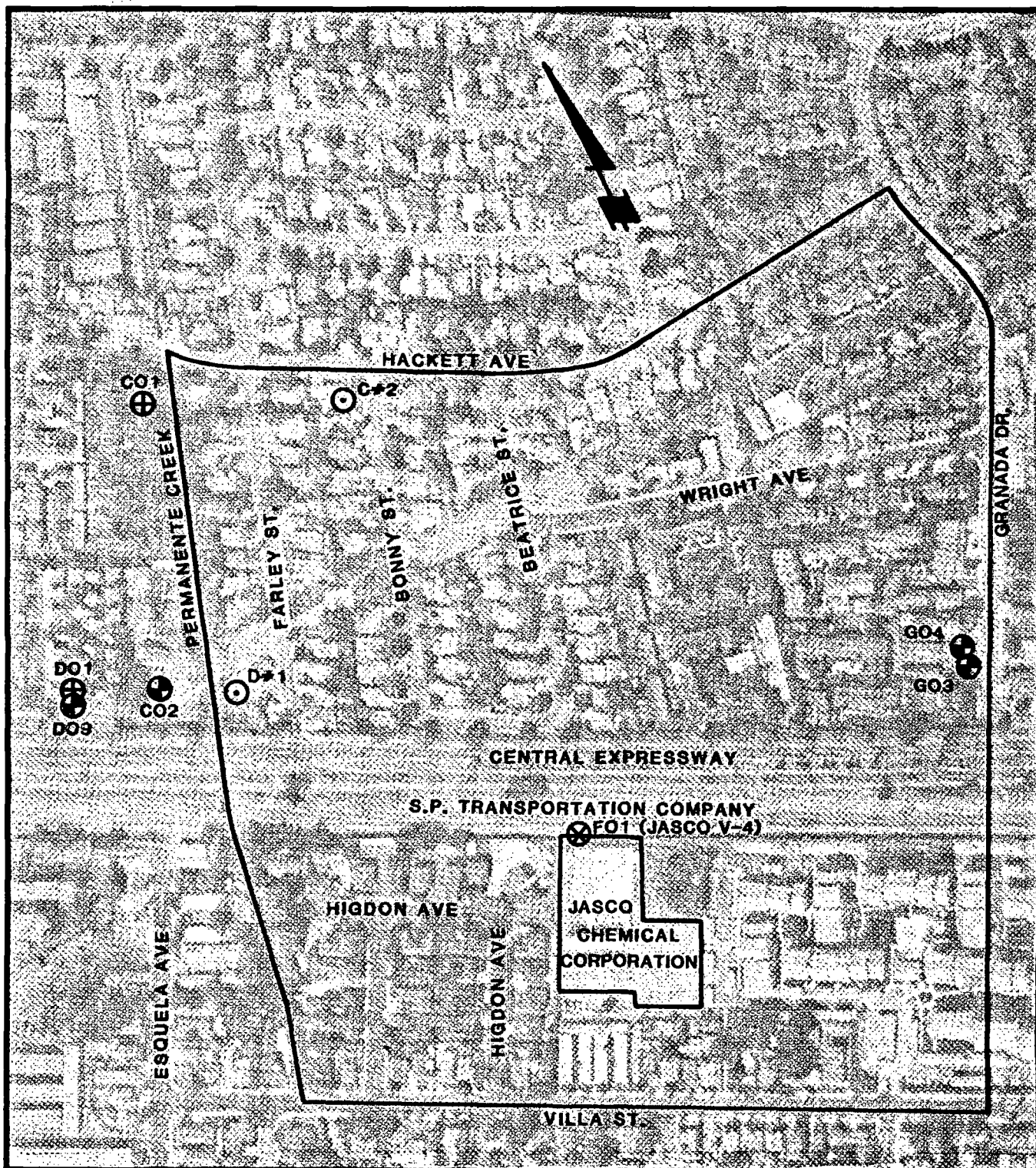
JCO-104H

DATE

MAY 1988

FIGURE NO.

2



EXPLANATION



CONDUIT INVENTORY REGION



DESTROYED DOMESTIC WELL

WELL IDENTIFIED BY AIR-PHOTO
INTERPRETATION

ACTIVE INDUSTRIAL WELL



DESTROYED WELL - USE UNKNOWN

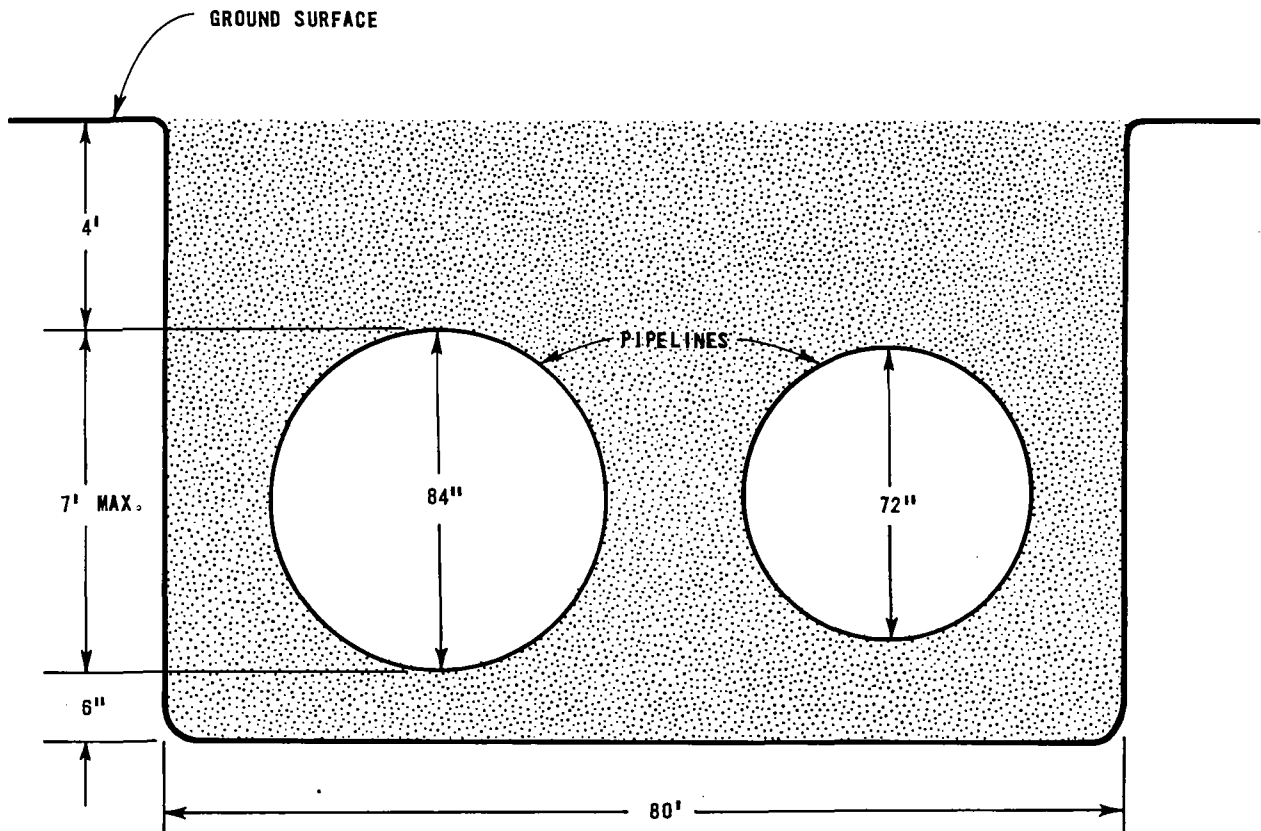
300 0 300 FEET

**Wahler
Associates**
**JASCO CHEMICAL CORPORATION
POTENTIAL CONDUIT INVESTIGATION**

PALO ALTO • CALIFORNIA

**PRELIMINARY WELL IDENTIFICATION SUMMARY
(NOT INCLUDING MONITORING WELLS)**

PROJECT NO.	DATE	FIGURE NO.
JCO-104H	MAY 1988	3



SAND / NATIVE SOIL BACKFILL

NOT TO SCALE

W Wahler
Associates

JASCO CHEMICAL CORPORATION
POTENTIAL CONDUIT INVESTIGATION

PALO ALTO • CALIFORNIA

SCHEMATIC DIAGRAM OF
HETCH-HETCHY AQUEDUCT

PROJECT NO.

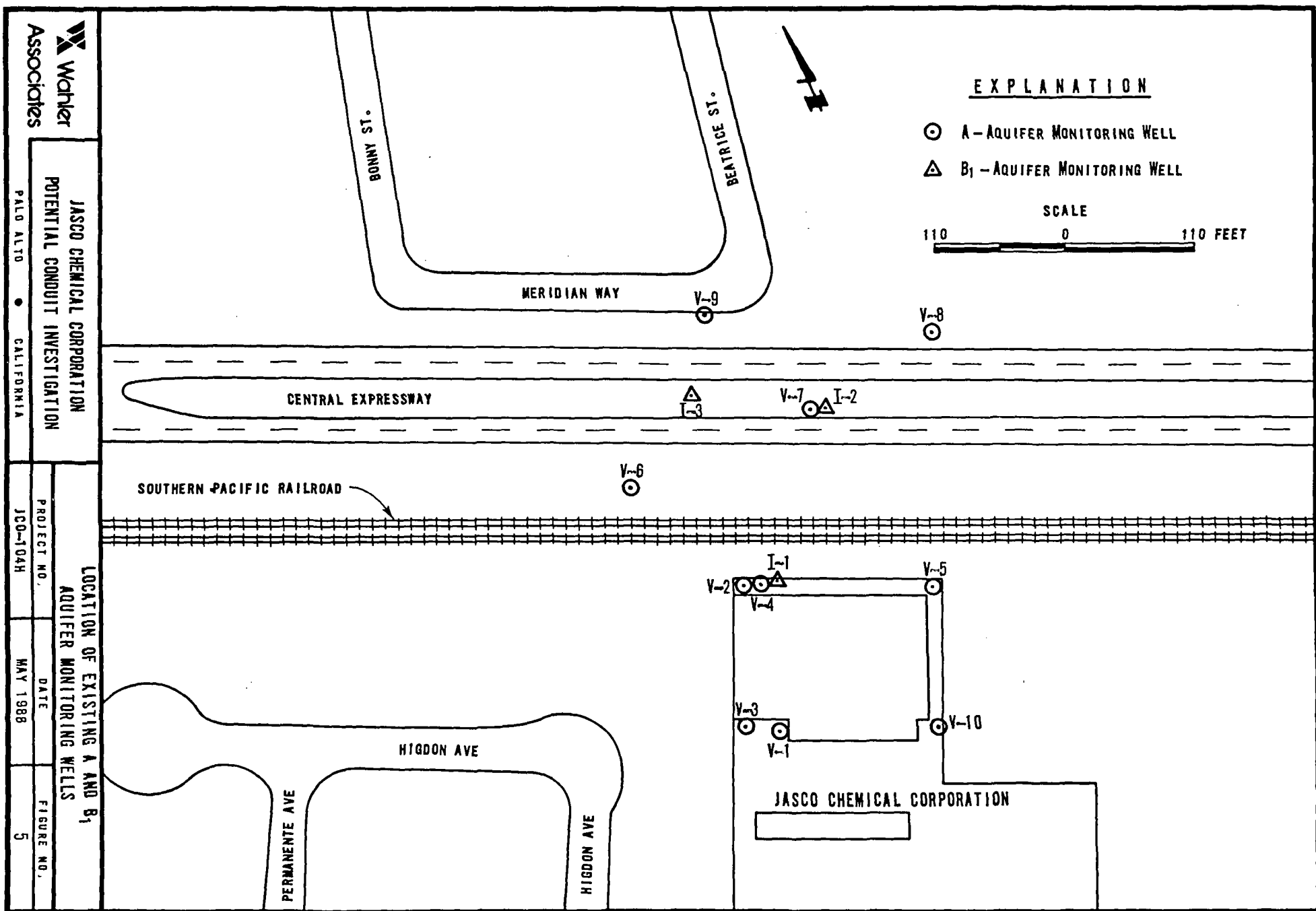
JCO-104H

DATE

MAY 1988

FIGURE NO.

4



APPENDIX A

WELL CONSTRUCTION

	PERMITS ISSUED BY:	WELLS INSPECTED BY:	RECORDS OF PERMITS 1/68 INSPECTIONS	DEPTH OF SEAL REQUIREMENT
PRESENT	SANTA CLARA VALLEY WATER DISTRICT	SANTA CLARA VALLEY WATER DISTRICT	SANTA CLARA VALLEY WATER DISTRICT	* 50' - ZONES 1 & 3 150' - ZONE 2
1984				
1980				
1975				
1970s				MINIMUM STATE STANDARDS - 20'
1960s				
1950s				
pre-1950s				

* IN AREAS OF KNOWN CONTAMINATION, EACH WELL
REVIEWED ON INDIVIDUAL BASIS TO DETERMINE
DEPTH OF SEAL.

WELL DESTRUCTION

0000126

	PERMITS ISSUED BY:	WELLS INSPECTED BY:	RECORDS OF PERMITS &/OR INSPECTIONS	DEPTH OF SEAL REQUIREMENT
PRESENT	SANTA CLARA VALLEY WATER DISTRICT	SCVWD	SANTA CLARA VALLEY WATER DISTRICT	ENTIRE DEPTH OF WELL
1984		SANTA CLARA COUNTY HEALTH DEPARTMENT		50' CAP
1980				
1975	S.C.C. HEALTH DEPT. *		40' CAP	
1970s				
1960s				
1950s				20'
				PEA GRAVEL
pre-1950s				

* LAND DEVELOPMENT PERMIT - CONDITION OF SITE
APPROVAL WAS TO HAVE WELL CAPPED. (SEALED')

REFERENCE: Santa Clara Valley District, 5-5-88